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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/713,187	11/15/2000	James David Johnston	JOHNSTON 1999-0796	4673

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EXAMINER

WOO, STELLA L

ART UNIT	PAPER NUMBER
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2643

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DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/713,187

Applicant(s)

JOHNSTON ET AL.

Examiner

Stella L. Woo

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2000 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Godfrey (US RE38,350 E) in view of Moller et al. (US 6,118,875).

Godfrey discloses a sound recording arrangement (global sound microphone system) comprising:

a plurality of at least three microphones (directional microphones 12, 14, 16, 18, 20, 22, 24, 26, 28, 30); and

means for communicating signals to other equipment (multi-channel audio mixer connects each microphone with a digital multi-channel sound recording device; col. 3, lines 9-14; col. 4, lines 46-50).

Godfrey differs from the claims in that it does not specify at least one pair of microphones providing a sound time-of-arrival difference of approximately 0.9 msec. However, Moller et al. teach the desirability of simulating the transmission of sound to the ear canals of a listener by using a head-related transfer function value of 0.9 msec (Abstract; col. 7, lines 35-39) such that it would have been obvious to an artisan of ordinary skill to incorporate a head-related transfer function to effect a desirable difference value of 0.9 ms, as taught by Moller et al., for a

pair of microphones in Godfrey in order to more closely simulate the transmission of sound to a listener's ear canals.

Regarding claim 5, in Godfrey, directional microphones 12-26 form an elliptical pattern along a horizontal plane 10 (see Figures 1-3; col. 2, lines 39-42; col. 3, lines 52-58).

Regarding claim 6, in Godfrey, microphone 28 is directed upward from frame 10 (Figure 2; col. 3, line 67 – col. 4, line 3).

Regarding claim 7, microphone 12 points to a front direction when the system is supported using the hand grip 32 (Figure 2; col. 4, lines 4-12, 20-32; col. 5, lines 9-17).

Regarding claim 8, in Godfrey, microphones 14-18, 22-26 form pairs (see Fig. 1).

Regarding claim 9, in Godfrey, sensitivity varies among the microphones based on the sound source direction (col. 4, lines 35-46).

Regarding claim 10, Godfrey teaches a global microphone system in which the microphones form a spherical shape (see Fig. 2).

Regarding claim 13, in Godfrey, microphone 30 is directed downward from frame 10 (Figure 2; col. 4, lines 9-11).

Regarding claim 14, in Godfrey, microphones 12-26 form an elliptical pattern along horizontal plane 10 (Figs. 1-3; col. 2, lines 39-42; col. 3, lines 52-58), microphone 28 points upward (Fig. 2; col. 3, line 67 – col. 4, line 3) and microphone 30 points downward (Fig. 2; col. 4, lines 9-11).

Regarding claim 15, in Godfrey, sound from each of the microphones 12-26 are recorded individually for individual playback through multiple speakers 82-96 (col. 4, lines 47-60).

Regarding claim 16, Godfrey provides for a multi-channel audio mixer (col. 3, lines 9-15; col. 4, lines 59-60).

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Godfrey in view of Moller et al., and further in view of Sibbald et al. (US 5,600,727).

The combination of Godfrey and Moller et al. differs from claim 18 in that it does not specify an odd number of microphones on the horizontal plane. However, Sibbald et al. teach the desirability of using an odd number of microphones (microphones 16, 18, 20) along a horizontal plane (see Figure 1) in a sound recording system such that it would have been obvious to an artisan of ordinary skill to modify the number of microphones used in the combination of Godfrey and Moller et al. to an odd number, as taught to be well known by Sibbald et al.

Allowable Subject Matter

4. Claims 17, 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claim 21 is allowed because the prior art fails to teach or fairly suggest a process which develops signals according to the recited equation.

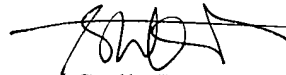
Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sibbald et al. (US 5,666,425) show another system using an odd number of microphones along a plane. Ide et al. show another global-shaped microphone array system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stella L. Woo whose telephone number is (703) 305-4395. The examiner can normally be reached on Monday-Tuesday, Thursday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (703) 305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stella L. Woo
Primary Examiner
Art Unit 2643